

CITY OF HILLSBORO



INVITATION TO BID

FOR

NW 253rd Avenue Creek Crossing Culvert Systems

Address bids to:

Charlie Shell
City of Hillsboro Engineering Dept.
150 East Main Street,
Hillsboro, OR 97123

Refer questions to:

Charlie Shell
City of Hillsboro Engineering Department
150 East Main Street,
Hillsboro, OR 97123
503-681-6252 voice
503-681-6245 fax
Email: Charlie.shell@hillsboro-oregon.gov

Bids due:

By 2:00 PM, Tuesday, August 13th, 2013

Envelopes must be sealed, plainly marked:
**“Bid submittal for NW 253rd Avenue
Culverts”** sent to the attention of Charlie
Shell, Buyer, and include the name and
address of the bidder. The City of Hillsboro
reserves the right to reject any or all bids.

Issued By
City of Hillsboro Engineering Department
150 East Main Street
Hillsboro, Oregon 97123
(503) 681-6146
August 5th, 2013

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I. ADVERTISEMENT

CITY OF HILLSBORO INVITATION TO BID

NW 253rd Avenue Creek Crossing Culvert Systems

This is an Invitation to Bid (ITB) to provide and deliver two open bottom pre-cast roadway culverts, footings and wing walls to the City of Hillsboro for use in the construction of two roadway creek crossings. The creek crossing culvert openings shall be sized as follows;

Crossing One – A span of 15 feet and a rise of approximately 3 feet and 3 inches.

Crossing Two – A span of 22 feet and a rise of approximately 5 feet and 1 inch.

Installation of the two creek crossing culvert systems will be completed by others.

The materials shall conform to or be equivalent to the specifications contained in the invitation to bid. The City of Hillsboro intends to purchase these pre-cast concrete creek crossing culvert systems in advance of beginning project construction to have them available to meet a 2013 construction completion schedule.

It is the City's desire to have the culvert systems ready for installation and delivered to the construction site no later than October 1, 2013. Selection of the winning bid will not be based upon cost alone; but will also be evaluated based upon the ability to meet the desired schedule. The ability to deliver one or both of the finished culvert systems prior to October 1, 2013 will be considered in the award. The anticipated time of award for this contract is August 21, 2013.

Bid documents may be obtained from the office of the City Engineer, City of Hillsboro Civic Center, Fourth Floor, 150 East Main Street, Hillsboro, Oregon 97123 for \$15.00 (non refundable). Please call the Public Works Department, Engineering Division at 503-681-6146 for additional information.

The bidding documents may be reviewed at the above address, at many of the area plan centers, and on the City's website.

Sealed bids will be received only at the office of City Engineer, City of Hillsboro Civic Center, Fourth Floor, 150 East Main Street, Hillsboro, Oregon 97123, before 2:00 p.m. on Tuesday, August 13, 2013.

Any or all bids may be rejected by the City of Hillsboro.

Dated this 2nd day of August, 2013

CITY OF HILLSBORO



City Recorder

Please Publish:

Argus: August 7 and 9, 2013

Daily Journal: August 5 and 7, 2013

II. INVITATION TO BID (ITB)

This is an Invitation to Bid (ITB) to provide two Pre-Cast Concrete Open Bottom Roadway Culvert Systems to the City of Hillsboro for use in the construction of two roadway creek crossings.

Sealed bids will be received until 2:00 pm, on the date listed on page 1 of this Invitation to Bid (ITB), at the office of City Engineer, City of Hillsboro Civic Center, Fourth Floor, 150 East Main Street, Hillsboro, Oregon 97123.

BIDDERS NOTE: Be sure to read the entire document and all attachments. By submitting a bid in response to this specific Invitation To Bid, bidder is affirming they have completely read all the specifications, terms, conditions, and requirements of the bid. Bidder also affirms that the bid submitted is in response to the bid language and requirements for this specific solicitation and no assumptions have been made as to any previously issued solicitation.

CHANGES TO BID SPECIFICATIONS: Bidders are cautioned that the City of Hillsboro's 'official' response to any questions or requests will be through direct letters or the addenda process. Bid requirements will change only if confirmed by a written addendum to the ITB, issued by the City Engineering Department.

ADDENDA as they pertain to this ITB will be faxed, emailed or mailed to everyone on the list of bid document recipients maintained by the City Engineering Department.

No consideration will be given to any claim resulting from bidding without comprehending all instructions, specifications, and/or work conditions.

METHOD OF BIDDING: Bidders are required to provide pricing and delivery schedules, for each of the bid items listed on the Pricing Form that the bidder proposes to furnish. It is the City's desire to have the pre-cast concrete culvert systems ready for installation and delivered to the construction site no later than October 1st, 2013. Selection of the winning bid will not be based upon cost alone; but will also be evaluated based upon the ability to meet the desired schedule. The ability to deliver one or both of the finished culvert systems prior to October 1, 2013 will be considered in the award.

UNALTERED FORM REQUIRED: THE BID RESPONSE SHALL BE MADE ON THE FORM(S) PROVIDED IN THE INVITATION TO BID AND AS PRESCRIBED BY THE ENGINEERING DEPARTMENT. THE BIDDER MAY NOT ALTER, MODIFY, OR CHANGE THE BID FORM(S) EXCEPT AS DIRECTED IN THE ORIGINAL CONTRACT DOCUMENTS, BY BID ADDENDUM OR AS PROVIDED BELOW. ANY OTHER FORM OF BID RESPONSE IS INVALID. BIDDERS ARE REQUIRED TO USE THE FORM(S) PROVIDED WITHIN THE INVITATION TO BID OR EXACT REPRODUCTION THEREOF. THIS PROVISION DOES NOT PRECLUDE A BIDDER FROM REPRODUCING AND COMPLETING THE FORM OR FORMS ELECTRONICALLY WITH A COMPUTER WORD PROCESSING PROGRAM. WHETHER MANUALLY OR COMPUTER PREPARED, NO CHANGES SHALL BE MADE IN PHRASEOLOGY OF THE FORMS OR IN THE BID ITEMS, OR THE BID SHALL BE REJECTED.

BIDDERS ARE NOT TO SUBMIT A SEPARATE EDIT ORIALIZED VERSION OF THIS DOCUMENT; THIS IS NOT A REQUEST FOR PROPOSAL (RFP). FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN THE REJECTION OF THE BID SUBMITTED.

III. INSTRUCTIONS TO BIDDERS

For The Purchase of Goods

All bids are subject to the provisions and requirements of the Oregon Revised Statutes, the State of Oregon Attorney General's Model Public Contract Rules and the Administrative Rules of the City of Hillsboro

BID PREPARATION:

BID FORMAT: Bids must be typewritten or prepared in ink and must be submitted on the form provided in the Invitation to Bid or Request for Proposal. No oral, telegraphic, telephone or facsimile bids will be accepted unless specified in the bidding documents.

In a joint effort to save costs, reduce waste and produce energy savings, bidders are encouraged to use standard 8-1/2" x 11" paper with 2-hole (top) fasteners, and recyclable binders (when use of binders is indicated). Bidders are encouraged to refrain from submitting bid responses in 3-ring binders, spiral bindings, and other nonrecyclable presentation folders.

CONFORMANCE TO BID REQUIREMENTS: Bids must conform to the requirements of the Invitation to Bid or Request for Proposal. All necessary attachments (residency statement, bid bond, references, descriptive literature, etc.) must be submitted with the bid and in the required format. Bid prices must be for the unit indicated on the bid. Failure to comply with all requirements may result in bid rejection.

USE of BRAND or TRADE NAMES: Any brand or trade names used by the City in bid specifications are for the purpose of describing and establishing the standard of quality, performance and characteristics desired and are not intended to limit or restrict competition. Bidders may submit bids for substantially equivalent products to those designated unless the Invitation to Bid provides that a specific brand is necessary because of compatibility requirements, etc. All such brand substitutions shall be subject to purchaser's approval.

PRODUCT IDENTIFICATION: Bidders must clearly identify all products bid. Brand name and model or number must be shown. The City reserves the right to reject any bid when the product information submitted with the bid is incomplete.

DELINQUENT OREGON TAXES: Bidders must certify, under penalty of perjury, that they are not in violation of any Oregon tax laws. No contract for the purchase of goods and/or services will be awarded to a bidder who cannot so certify.

EXCEPTIONS: Any deviation from bid specifications, terms and conditions may result in bid rejection.

DELIVERY: Delivery time must be shown in number of calendar days after receipt of order.

SIGNATURE ON BID: Bids must be signed in ink by an authorized representative of the bidder. Signature on a bid certifies that the bid is made without connection with any person, firm or corporation making a bid for the same goods and/or services and is in all respects fair and without collusion or fraud.

Signature on a bid also certifies that the bidder has read and fully understands all bid specifications, terms and conditions. No consideration will be given to any claim resulting from bidding without comprehending all requirements of the Invitation to Bid or Request for Proposal.

BID MODIFICATION: Modifications or erasures made before the person signing the bid must initial bid submission in ink. Bids, once submitted, may be modified in writing before the time and date set for bid closing. Any modifications shall be prepared on company letterhead, signed by an authorized representative, and state that the new document supersedes or modifies the prior bid. Modification must be submitted in a sealed envelope clearly marked "Bid Modification" and identify the bid number and closing date. Bidders may not modify bids after bid closing time.

BID WITHDRAWALS: Bids may be withdrawn in writing on company letterhead signed by an authorized representative and received by the Engineering Department prior to bid closing time. Bids may also be withdrawn in person before bid closing time upon presentation of appropriate identification.

PROTEST OF BID SPECIFICATIONS: A bidder who believes that bid specifications are unnecessarily restrictive or limit competition may submit a protest, in writing, to the Engineering Department. To be considered, protests must be received at least five days before the bid closing date. Envelopes containing protests should be marked as follows:

Bid Specification Protest
Bid Number Closing Date

BID SUBMISSION: Sealed bids must be received and time-stamped by the Engineering Department prior to bid closing time. No bid received after bid closing time will be considered. To assure that your bid receives priority treatment within our mailing system please mark as follows:

Project Name, Bid Due Date: August 13, 2013
Time of Opening: 2:00 PM

CITY OF HILLSBORO
ENGINEERING DEPARTMENT
150 EAST MAIN STREET, 4TH FLOOR
HILLSBORO, OR 97123

The Engineering Department shall not be responsible for the proper identification and handling of any bid not submitted in a timely manner.

BID OPENING: Bids will be opened at the scheduled opening time at the Engineering Department (unless otherwise specified). Bidders may be present; however, award decisions will not be made at the opening.

BID EVALUATION AND AWARD:

Evaluation Criteria: Bids will be awarded based upon the evaluation criteria in the Invitation to Bid or Request for Proposal or in Oregon administrative rules or laws.

Ordinarily, bids will be evaluated to identify the "lowest responsible bidder." The "lowest responsible bidder" is the lowest bidder who has substantially complied with all requirements of the Invitation to Bid and who can be expected to deliver promptly and perform reliably.

However, it is the City's desire to have the pre-cast concrete culvert systems ready for installation and delivered to the construction site no later than October 1st, 2013. Selection of the winning bid will not be based upon cost alone; but will also be evaluated based upon the ability to meet the desired schedule. The ability to deliver one or both of the finished culvert systems prior to October 1, 2013 will be considered in the award. The City reserves the right to award the bid to the bidder with the most advantageous combination of price and delivery schedule that is in the best interest of the City to meet the 2013 project completion schedule. Providing a bid with delivery dates past October 1, 2013 will be considered nonresponsive.

RECIPROCAL PREFERENCE: In determining the "lowest responsible bidder," the City will add a percent increase to each out-of-state bidder's bid price which is equal to the percent given to local bidders in that bidder's home state.

DELIVERY: Delivery of the culvert systems on or before October 1, 2013 is critical in completing the installation by the end of October. Missing one or both delivery dates in the bidder's bid shall constitute a breach in the contract.

CASH DISCOUNTS: Cash discounts will not be considered for award purposes unless stated in the bid documents.

PAYMENT: Bids that require payment in less than 30 days after receipt of invoice or delivery of goods, whichever is later, may be rejected.

METHOD OF AWARD: The City reserves the right to make the award to the Responsive Bidder submitting the most Advantageous Responsive bid by item, and by delivery schedules, whichever is in the best interest of the City. The City also reserves the right to make multiple awards.

ESTIMATED PURCHASES: The City in no way implies or guarantees that any amount will be purchased during the term of any contract resulting from this invitation to bid (ITB).

BID REJECTION: The City reserves the right to reject any and all bids.

INTENT TO AWARD NOTICE: Pursuant to OAR 137-47-0610, the City shall serve written notice to all bidders of the City's intent to make the award to the lowest, responsive bidder(s). Bidders shall have five (5) business days within which they can view the bid file(s) by appointment or request any clarifications, etc. concerning the award(s). After the expiration of this five (5) day period, the City shall proceed with the formal award of the contract(s). If it is determined by the City that there are no bidders that could be grieved by the award of this solicitation, the City reserves the right to waive or shorten the protest period and to proceed with award.

PROTEST OF AWARD: Bidders shall have five (5) business days, after the City Engineering Office announces their intent to award, within which to file a written protest. OAR 137-047-0740 provides that the protest must specify the grounds upon which the protest is based. The Engineering Department will not accept protests submitted more than five (5) business days after the intent to award notice. After expiration of the five (5) day period and resolution of all protests, the Engineering Department will proceed with final award.

UNALTERED FORM REQUIRED. The Bid response shall be made on the form(s) provided in the Invitation to Bid and as prescribed by the Engineering Department. The Bidder may not alter, modify, or change the Bid form(s) except as directed in the original Contract Documents or by Bid addendum. Any other form of Bid response is invalid. Bidders are required to use the form(s) provided within the Invitation to Bid or exact reproduction thereof. This provision does not preclude a Bidder from reproducing and completing the form or forms electronically with a computer word processing program. Whether manually or computer prepared, no changes shall be made in phraseology of the forms or in the Bid items, or the Bid shall be rejected.

IV. STANDARD TERMS AND CONDITIONS

Contracts For The Purchase Of Goods

1. DEFINITIONS:

"Addendum" or "Addenda" means an addition or deletion to, a material change in, or clarification of, the ITB. Addendum or Addenda shall be labeled as such and shall be made available to all interested Bidders.

"Authorized Purchaser" means the City of Hillsboro, acting by and through its Departments and participants who submit Purchase Orders to Contractor. "Authorized Purchaser", "Department" and "City" as used herein shall be synonymous with "Buyer" as defined at ORS 72.1030(a).

"Bid" means a competitive offer, binding on the Bidder and submitted in response to an Invitation to Bid.

"Bidder" means an Entity or person that submits a Bid in response to an Invitation to Bid.

"City" means the City of Hillsboro, acting by and through its Departments.

"Contract" means the entire written agreement between the parties, including but not limited to the Invitation to Bid or Request for Proposal and its specifications, terms and conditions; solicitation instructions; solicitation addenda and contract amendments, if any; the purchase order or price agreement document.

"Contractor" means a person or organization with whom the City of Hillsboro has contracted for the purchase of goods. The terms "Contractor" and "Seller" as used in the Uniform Commercial Code (ORS chapter 72) are synonymous; "ORS" means the Oregon Revised Statutes;

"Department" means the City department making the purchase.

"Entity" means a person capable of being legally bound, including but not limited to the following: an individual; a sole proprietorship; a limited liability company; a corporation, foreign corporation, or nonprofit corporation; a profit and nonprofit unincorporated association; a business trust; a partnership; two or more persons having a joint or common economic interest; or a government or governmental subdivision.

"Price Agreement" means this Solicitation document and all Addenda thereto, and the successful Bidder's response.

"UCC" means the Uniform Commercial Code, ORS chapter 72, as amended from time to time.

2. WORKERS' COMPENSATION: The Contractor, its subcontractors, if any, and all subject employers providing work, labor, or materials under this Contract are either employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage that satisfies Oregon Law for all their subject workers or they are employers that are exempt under ORS 656.126.

3. STANDARD & SPECIAL TERMS & CONDITIONS:

ORDER OF PRECEDENCE: These printed Terms and Conditions are the Standard Terms and Conditions for the City of Hillsboro Contracts for the purchase of goods. The City may also provide additional "special terms and conditions" elsewhere in this Price Agreement which shall apply only to this Price Agreement. Whenever possible, all terms and conditions are to be harmonized. In the event of a conflict between the standard and "special terms and conditions", the "special terms and conditions" take precedence, unless the standard term(s) in question is/are required by law. In the event of any other conflict, 1) the special terms and conditions, 2) these Standard Terms and Conditions, 3) the Invitation to Bid or Request for Proposal, and 4) the proposal or response thereto shall be interpreted in the foregoing order of precedence. By signing this ITB, Contractor accepts these terms and conditions and agrees that, in the event of a conflict, all the terms and conditions of this Price Agreement shall supersede all conflicting preprinted terms and conditions on any forms used by the Contractor or any Authorized Purchaser.

4. DELIVERY: Responsibility and liability for loss or damage shall remain with the Contractor until final inspection and acceptance when responsibility shall pass to the City except as to latent defects, fraud and Contractor's warranty obligations. All deliveries shall be F.O.B. destination with all transportation and handling charges paid by Contractor, unless specified otherwise in the solicitation documents.

5. INSPECTIONS: Goods furnished under this contract shall be subject to inspection and test by the Authorized Purchaser at times and place determined by the Authorized Purchaser. If the Authorized Purchaser finds goods furnished to be incomplete or not in compliance with solicitation specifications, the Authorized Purchaser may reject the goods and require Contractor to either correct them without charge or deliver them at a reduced price, whichever is equitable under the circumstances. If Contractor is unable or refuses to cure any defects within a time deemed reasonable by the Authorized Purchaser, the Authorized Purchaser may reject the goods and cancel the contract in whole or in part. Nothing in this paragraph shall in any way affect or limit the Authorized Purchaser's rights as buyer, including the rights and remedies relating to rejection under ORS 72.6020 and revocation of acceptance under ORS 72.6080.

6. WARRANTIES: Unless otherwise stated, all goods purchased pursuant to this Price Agreement shall be free and clear of any liens or encumbrances and shall be new (and, if applicable, the current model) and shall carry full manufacturer warranties. Contractor warrants all goods delivered to be free from defects in labor, material design and manufacture to be in compliance with the specifications set out in the Contract including but not limited to quality, performance and health and safety specifications. All implied and express warranty provisions of the UCC are hereby incorporated by reference. Further, Contractor represents and warrants to Authorized Purchaser that Contractor has the power and authority to enter into and perform the Contract and that the Contract, when executed and delivered, shall be a valid and

binding obligation of Contractor enforceable in accordance with its terms. The warranties set forth in this section are in addition to, and not in lieu of, any other warranties provided

7. CASH DISCOUNT: If the Authorized Purchaser is entitled to a cash discount, the period of computation shall commence on the date the entire order is delivered or the date the invoice is received, whichever is later.

8. PAYMENT: Payment for completion of City contracts is normally made within 30 days following the date the entire order is delivered or the date the invoice is received, whichever is later.

9(a). PRICE AGREEMENT TERMINATION: This Price Agreement may be terminated at any time by mutual written consent of the parties or the City may, at its sole discretion, terminate this Price Agreement, in whole or in part, upon 30 days notice to Contractor.

9(b). CONTRACT TERMINATION: A) A Contract may be terminated at any time by mutual written consent of the parties or the Authorized Purchaser may, at their sole discretion, terminate the Contract upon written notice to Contractor.

B) The Authorized Purchaser may terminate the Contract, in whole or in part, immediately upon notice to Contractor, or at such later date as the Authorized Purchaser may establish in such notice, upon the occurrence of any of the following events: (i) Authorized Purchaser fails to receive funding, or appropriations, limitations or other expenditure authority at levels sufficient to allow Authorized Purchaser, in the exercise of its reasonable discretion to continue with the Contract or; (ii) Federal or state laws, regulations or guidelines are modified or interpreted in such a way that either the purchase of goods pursuant to the Contract is prohibited or Authorized Purchasers would be prohibited from paying for such goods from planned funding sources; or (iii) Contractor commits a material breach or default of any covenant, warranty, guarantee or obligation under the Contract, fails to perform under the Contract within the time specified herein or any extension thereof, or fails to pursue performance of the Contract so as to endanger Contractor's performance under the Contract in accordance with its terms, and such breach, default or failure is not cured within ten (10) business days after delivery of Authorized Purchaser's notice or such longer period as Authorized Purchaser may specify in such notice. Pursuant to this section 9(b), upon receipt of written notice of termination, Contractor shall stop performance under the Contract as directed by Authorized Purchaser.

C) Termination under any provision of the Contract shall not extinguish or prejudice the Authorized Purchaser's right to enforce the Contract with respect to any breach of a Contractor warranty or any defect in or default of Contractor's performance that has not been cured, including any right of the Authorized Purchaser to indemnification by Contractor. If the Contract is so terminated, Contractor shall be paid in accordance with the terms of the Contract with regards to goods already delivered and accepted.

10. FORCE MAJEURE: Neither the City, Authorized Purchaser nor Contractor shall be held responsible for delay or default caused by fire, riot, acts of God, war, or any other cause which is beyond the party's reasonable control. Contractor shall,

however, make all reasonable efforts to remove or eliminate such a cause of delay or default and shall, upon the cessation of the cause, diligently pursue performance of its obligations under the Contract. The City or the Authorized Purchaser may terminate the Contract upon written notice after reasonably determining that such delay or default will likely prevent successful performance of the Contract. Termination pursuant to this section affects only the Contract in question and not the underlying Price Agreement.

11. BREACH OF CONTRACT: Should Contractor breach any of the provisions of this contract, the City reserves the right to cancel this contract upon written notice to Contractor. Contractor shall be liable for any and all damages suffered by the City or Authorized Purchaser as the result of Contractor's breach of contract, including but not limited to incidental and consequential damages, as provided in ORS 72.7110 to 72.7170.

12. HOLD HARMLESS: Contractor shall indemnify, defend and hold harmless the City and its Departments, officers, employees, agents, volunteers, members and Authorized Purchaser, from all claims, suits or actions of any nature arising out of or related to the activities of Contractor, its officers, subcontractors, agents or employees under this contract.

13. ACCESS TO RECORDS: The Contractor shall maintain all fiscal records relating to this contract in accordance with generally accepted accounting principles and shall maintain any other records relating to this contract in such a manner as to clearly document Contractor's performance hereunder. The City and its Departments, Authorized Purchasers, the federal government and their duly authorized representatives shall have access to such fiscal records and to all other books, documents, papers, plans and writings of Contractor which relate to this contract, to perform examination, and audits and make excerpts and transcripts. Contractor shall retain and keep accessible all such fiscal records, books, documents, papers, plans, and writings for a minimum of 3 years, or such longer period as may be required by applicable law following final payment and termination of this Contract, or until the conclusion of any audit, controversy or litigation arising out of or related to the Contract, whichever date is later.

14. AMENDMENTS: The terms of this contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the City.

15. SEVERABILITY: If any provision of this contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected; and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the particular provision held to be invalid.

16. WAIVER: Failure of the City to enforce any provision of this contract shall not be a waiver or relinquishment by the City of its right to such performance in the future nor of the right to enforce any other provisions of this contract.

17. GOVERNING LAW; JURISDICTION; VENUE: This contract shall be governed and construed in accordance with the laws of the State of Oregon, without resort to any jurisdiction's conflict of laws rules or doctrines. Any claim, action, suit, or proceeding (collectively, "the claim") between the City and the

contractor that arises from or relates to this contract or price agreement shall be brought and conducted solely and exclusively within the Circuit Court of Washington County for the State of Oregon. Provided, however, if the claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. Contractor hereby consents to the in personam jurisdiction of said courts.

Any Claims between Contractor and any other Authorized Purchaser besides the City or its Departments, that arise or relate to the Contract shall be brought and conducted solely and exclusively within the Circuit Court of the county in which such Authorized Purchaser resides, or at Authorized Purchaser's option, within such other county as the Authorized Purchaser shall be entitled under the laws of the relevant jurisdiction to bring or defend Claims. If any such Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District in which such Authorized Purchaser resides.

18. ASSIGNMENT/SUBCONTRACT/SUCCESSORS: Contractor shall not assign, sell, transfer, or subcontract rights, or delegate responsibilities under this contract, in whole or in part, without the prior written approval of the Authorized Purchaser. No such written approval shall relieve Contractor of any obligations of this contract, and any transferee or subcontractor shall be considered the agent of Contractor. Contractor shall remain liable to the City under the contract as if no such assignment, transfer, or subcontract had occurred. The provisions of this contract shall be binding upon and shall inure to the benefit of the parties to the contract and their respective successors and assigns.

19. COMPLIANCE WITH APPLICABLE LAWS: Contractor shall comply with all federal, state and local laws, codes, regulations and ordinances applicable to the provision of goods under this contract, including, without limitation, the provisions of ORS 279B.220, 279B.235, and 279B.230. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with (i) Title VI of the Civil Rights Act of 1964; (ii) Section V of the Rehabilitation Act of 1973; (iii) the Americans with Disabilities Act of 1990 (Pub L No. 101-336). ORS 659.425, and all amendments of and regulations and administrative rules established pursuant to those laws; and (iv) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations. When any employees of the contractor are conducting business on the City of Hillsboro's premises, they must also comply with applicable City policy to include: Misconduct and Discipline, Personal Appearance and Conduct, Safety, Harassment, E-Mail, Internet Usage, and Drug and Alcohol Free Workplace. Copies of each policy can be retrieved from the Human Resources Department at 150 East Main St, 2nd Floor, Hillsboro, OR, 97123.

20. PAYMENTS REQUIRED By ORS 279B.220: For all goods provided under this contract, Contractor shall: (i) pay promptly, as due, all persons supplying labor or material; (ii) pay all contributions or amounts due the industrial Accident Fund from the contractor or any subcontractors; (iii) not permit any lien or claim to be filed or prosecuted against the City on account of any labor or material furnished; (iv) be responsible for all federal, state and local taxes applicable to any compensation or payments

paid to the Contractor under this Contract and, unless the Contractor is subject to backup withholding, the City will not withhold from such compensation or payments any amount(s) to cover the Contractor's federal or state tax obligation.

21. CITY PAYMENT OF CONTRACTOR CLAIMS: If Contractor fails, neglects or refuses to pay promptly, as due, any claim for labor or services furnished to the Contractor or any subcontractor by any person in connection with the goods provided under this contract, the City may pay such claim and charge the amount of the payment against funds due or to become due the Contractor under this contract. The payment of a claim by the City pursuant to this paragraph shall not relieve the Contractor or its surety, if any, from obligation with respect to any unpaid claims.

22. HOURS OF LABOR:

1) (a) Every public contract shall also contain a condition that no person shall be employed for more than 10 hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases, except in cases of contracts for personal services as defined in ORS 279A.055, the employee shall be paid at least time and a half pay:

(A) For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or

(B) For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and

(C) For all work performed on Saturday and on any legal holiday specified in ORS 279B.235.

(b) An employer must give notice to employees who work on a public contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work.

23. SAFETY AND HEALTH REQUIREMENTS: Goods and services provided under this contract shall comply with all federal Occupational Safety and Health Administration (OSHA) requirements and with all Oregon safety and health requirements, including those of the State Workers' Compensation Division.

24. AWARD TO FOREIGN CONTRACTOR: If the amount of this contract exceeds \$10,000 and if the Contractor is not domiciled in or registered to do business in the State of Oregon, Contractor shall promptly provide to the Oregon Department of Revenue and the Secretary of State Corporation Division all information required by those agencies relative to this contract. The City shall withhold final payment under this contract until Contractor has met this requirement.

25. RECYCLABLE PRODUCTS: Contractors shall use recyclable products to the maximum extent economically feasible in the performance of this contract.

26. MATERIAL SAFETY DATA SHEET: Contractor shall provide the City and Authorized Purchasers with a Material Safety Data Sheet as defined by the Occupational Safety and Health Administration (OSHA) for any goods provided under this

Contract which may release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use. In addition, Contractor must label, tag or mark such goods.

27. INTERGOVERNMENTAL COOPERATIVE PURCHASING: Pursuant to ORS 279A, other public agencies shall have the ability to purchase the awarded goods and services from the awarded Contractor(s) under terms and conditions of the resultant contract.

Any such purchases shall be between the Contractor and the participating public agency and shall not impact the Contractor's obligation to the City of Hillsboro. Any estimated purchase volumes listed herein do not include other public agencies and the City of Hillsboro makes no guarantee as to their participation.

Any bidder, by written notification included with their solicitation response, may decline to extend the prices and terms of this solicitation to any and/or all other public agencies.

Please indicate your acceptance or decline on the signature page.

28. ASSIGNMENT OF ANTITRUST RIGHTS: By entering into a contract or price agreement, the contractor, for consideration paid to the contractor under the contract, does irrevocably assign to the City of Hillsboro any claim for relief or cause of action which the contractor now has or which may accrue to the contractor in the future, including at the City's option, the right to control any such litigation on such claim for relief or cause of action, by reason of any violation of 15 USC ss. 1-15 or ORS 646.725 or ORS 646.730, in connection with any goods or services provided to the contractor by any person, which goods or services are used, in whole or in part, for the purpose of carrying out the contractor's obligations under this contract.

In the event the contractor hires subcontractors to perform any of the contractor's duties under the contract, the contractor shall require the subcontractor to irrevocably assign to the City of Hillsboro, as a third party beneficiary any right, title or interest that has accrued or may accrue to the subcontractor by reason of any violation of 15 USC ss. 1-15, ORS 646.725 or ORS 646.730, including at the City's option, the rights to control any litigation arising thereunder, in connection with any goods or services provided to the subcontractor by any person, in whole or in part, for the purpose of carrying out the subcontractor's obligations as agreed to by the contractor in pursuance of the completion of the contract.

In connection with this assignment, it is an express obligation of the contractor that it will take no action, which will in any way diminish the value of the rights conveyed or assigned hereunder to the City of Hillsboro. It is an express obligation of the contractor to advise the City Attorney:

28.1 In advance of its intention to commence any action on its own behalf regarding such claims for relief or causes of action.

28.2 Immediately, upon becoming aware of the fact that an action has been commenced on its own behalf by some other person or persons, of the tendency of such action; and

28.3 The date on which it notified the obligor(s) of any such claims for relief or causes of action of the fact of its assignment to the City of Hillsboro.

Furthermore, it is understood or agreed that in the event that any payment under any such claim is made to the contractor, it shall promptly pay over to the City of Hillsboro its proportionate share thereof, if any, assigned to the City hereunder.

29. TIME IS OF THE ESSENCE: Contractor agrees that time is of the essence under the Contract.

30. INDEPENDENT CONTRACTOR STATUS. The service or services to be rendered under this contract are those of an independent contractor. Contractor is not an officer, employee or agent of the City of Hillsboro or State of Oregon, as those terms are used in ORS 30.265.

31. CITY'S EXPECTATION.

31.1 The contractor shall comply with all the specifications requirements as stated.

31.2 It is the contractor's duty to conform to the requirements of this contract.

31.3 Expectations include but are not limited to the prompt delivery of the goods specified in this ITB.

31.4 Unless otherwise stated the contractor shall provide the goods specified that conform to the highest and best standards in the industry.

32. FAILURE TO PERFORM:

32.1 The City may withhold funds if the contractor fails to perform the work or provide the products ordered in accordance with the specifications and bid delivery dates.

32.2 The City may require additional work without any additional payments should the contractor fail to perform.

32.3 The City may declare the contractor in default and terminate this contract.

33. LIQUIDATED DAMAGES:

33.1 Failure to deliver the precast concrete culvert systems by the specified time will result in damages to the City. The parties to this contract agree that establishing the exact amount of damages the City will incur will be difficult. In order to compensate the City, the parties to this contract have estimated the amount the City would be damaged for every calendar day delivery is delayed. Consequently, the Contractor agrees to pay the City the sum of \$1,600 per day, not as a penalty but as liquidated damages, for each day elapsed beyond the delivery date set forth in the bid document. The total liquidated damages shall be deducted from the final payment due the Contractor.

The City may waive its right to claim part or all of the liquidated damages due under this provision, but such full or partial waiver shall not negate or abridge any other right of action the City may have to enforce the provisions of this Contract. Contractor will not contest such sums as being other than a reasonable measure of delay damages in the event those damages become payable under these provisions.

V. GENERAL SPECIFICATION REQUIREMENTS

REFERENCES: Not required.

VI. DETAILED SPECIFICATIONS FOR

NW 253rd Avenue Culverts

The pre-cast concrete culvert systems shall be as shown on the attached plans and bid documents **or** approved equal and shall be designed and constructed in accordance with the best workmanship of the best quality and constructed with due consideration to the nature and distribution for the intended use and load to be sustained. All components supplied shall be certified by a responsible individual of the company to meet the engineered specifications. Paper copies of said certifications shall be made available to the City 5 days prior to delivery. Should the bidder wish to propose an “equal” product, the bidder shall be responsible for providing all required engineering and associated documentation to deem their proposed product to be of equal quality. Alternate proposals shall also provide design and details required for the associated headwalls, wing walls, and footings. The price bid shall include delivery to the construction site (F.O.B.).

BIDDER REQUIREMENTS

The bidder shall comply with the following provisions and instructions.

The City of Hillsboro reserves the right to reject any or all bids or to accept any bid presented which is deemed the most advantageous price and schedule which are best suited to the interest of the City.

To be delivered FOB Destination at a location to be determined within one mile of the intersection of NW 253rd Avenue and NW Evergreen Road, Hillsboro, OR 97123 for the smaller culvert system and within one mile of the intersection of NW Meek Road and NW Brookwood Parkway, Hillsboro, OR 97123 for the larger culvert system. The City will be responsible to provide any construction access necessary to allow the materials to be trucked to the point of delivery.

Intent

It is the intent of this specification to provide for the purchase of two Pre-Cast Concrete Open Bottom Roadway Culvert Systems to the City of Hillsboro for use in the construction of two roadway creek crossing.

In comparing bids, consideration will not be confined to price only. Delivery schedule prior to October 1, 2013 will also be a consideration in the award. The successful bidder will be the one whose product and delivery schedule is judged to best serve the interests of the City when price, product, safety, and delivery are considered. The City of Hillsboro reserves the right to reject any or all bids or any part thereof, and to waive any minor technicalities. A contract will be awarded to the responsive bidder submitting the most advantageous price and delivery schedule that meets the requirements of this specification.

General

The specification herein states the minimum requirements of the City. All bids must be regular in every aspect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. The City of Hillsboro will consider as “irregular” or “non-responsive” and reject any bid not prepared and submitted in accordance with the specifications, or any bid lacking sufficient technical literature to enable the City to make a reasonable determination of compliance to the specifications.

Interpretations

In order to be fair to all bidders, no oral interpretations will be given to any bidder as to the meaning of the specification documents or any part thereof. Any request for such consideration shall be made in writing to the City of Hillsboro. Based upon such inquiry, the City may choose to issue an addendum to the specifications.

SPECIFIC SPECIFICATIONS

Proposed Pre-Cast Concrete Culvert Systems shall be as specified in the attached drawings labeled sheet R2.10, R2.12, R8.8, and R8.9 or approved equal.

VII. PRICING FORM
CITY OF HILLSBORO

Pursuant to and in accordance with the Purchaser's General Instructions, Requirements and Specifications for Bidders relating hereto the undersigned hereby offers to furnish and deliver the following in accordance with the Specifications or an approved equal culvert system for the following prices :

Item #	Description	Unit		Total Price
1	Manufacture and deliver culvert to be located at Station 47+20	LS		
2	Manufacture and Deliver Culvert to be located at Station 55+75	LS		
TOTAL				

The anticipated time of award for this contract is August 21, 2013.

Delivery of Culvert to be located at Station 47+20 After Receipt of Order (ARO): _____ Calendar Days

Delivery of Culvert to be located at Station 55+75 After Receipt of Order (ARO): _____ Calendar Days

All prices shall be firm for a minimum period of 60 days from the date of the bid opening.

The bidder is to assume risk of loss to the culverts/spans until delivered to the purchaser

VIII. SIGNATURE PAGE

MERGER/ACKNOWLEDGMENT: THIS BID RESPONSE, IF AWARDED BY THE CITY, WILL BECOME THE CONTRACT THAT CONSTITUTES THE ENTIRE AGREEMENT BETWEEN THE PARTIES, NO WAIVER, CONSENT, MODIFICATION OR CHANGE OF TERMS OF THIS CONTRACT SHALL BIND EITHER PARTY UNLESS IN WRITING AND SIGNED BY BOTH PARTIES. SUCH WAIVER, CONSENT, MODIFICATION OR CHANGE, IF MADE, SHALL BE EFFECTIVE ONLY IN THE SPECIFIC INSTANCE AND FOR THE SPECIFIC PURPOSE GIVEN. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, OR REPRESENTATIONS, ORAL OR WRITTEN, NOT SPECIFIED HEREIN REGARDING THIS CONTRACT. CONTRACTOR'S OWN LEGAL COUNSEL HAS ADVISED THE CONTRACTOR. THE CONTRACTOR, BY SIGNATURE OF ITS AUTHORIZED REPRESENTATIVE, HEREBY ACKNOWLEDGES THAT HE/SHE ALSO HAS READ THIS CONTRACT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. THIS CONTRACT SHALL BIND THE CITY WHEN IT IS SIGNED BY AN AUTHORIZED SIGNOR FOR THE CITY OF HILLSBORO.

I hereby acknowledge having received and duly considered the following addenda to the specifications:

Addenda No _____ to No. _____ inclusive.

By my signature below I agree to provide all solicited goods in accordance with the specifications and meet the performance standards set forth in this ITB.

_____	_____
Name of Bidder/Contractor	Date
By: _____	
Authorized Signature	Title

Printed Name	

Address _____

Phone: _____ Fax: _____ Email: _____

Federal Tax Identification No. _____

Business Designation of Bidder: _____ (Corporation, Partnership, Sole Proprietor, Joint Venture)

Bidder **IS** or **IS NOT** (*circle one*) a resident bidder as defined in ORS 279A.120.

The City of Hillsboro's preferred method of payment is by using the City's authorized Procurement Card. No price changes or additional fee(s) may be assessed when accepting the Procurement Card as a form of payment. Please indicate your firm's ability to take a Procurement Card as payment:

- ☐ Our firm will accept the City's Credit Card as payment.
- ☐ Our firm is unable to accept the City's Credit Card as payment at this time.

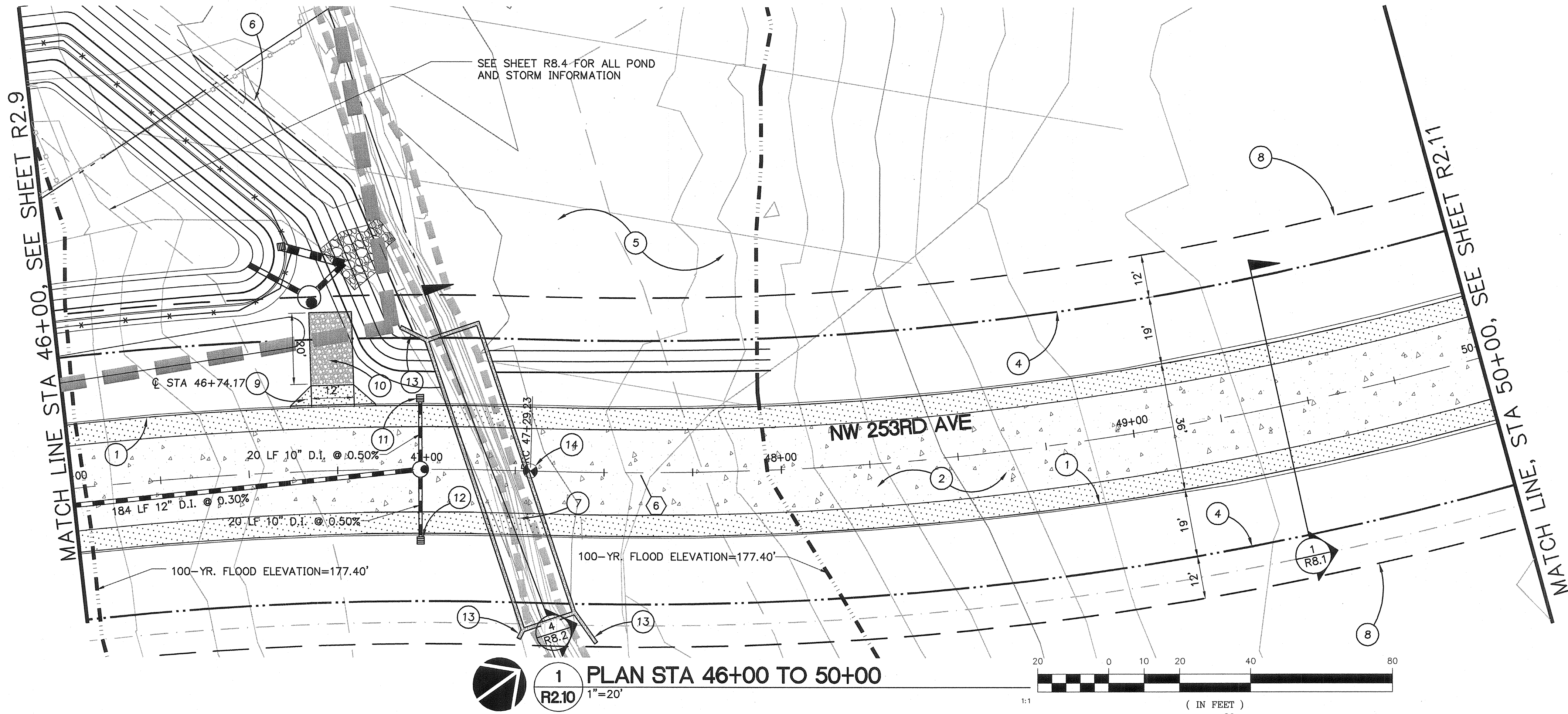
The above response will not be used in evaluating bids or proposals and is not a condition of award

If

**THE SIGNATURE BELOW BY THE CITY OF HILLSBORO CONSTITUTES ACCEPTANCE
OF THE BID SUBMITTED BY THE VENDOR.**

For the City of Hillsboro:

By _____	Date: _____, 20__
_____	_____
Printed Name	Title



KEYNOTES

1. PROPOSED MOUNTABLE CURB, SEE DETAIL 8/R8.7. TRANSITION TO VERTICAL CURB AT CATCH BASIN LOCATIONS, SEE DETAILS 9/R8.9 AND 2/R8.5.
2. PROPOSED CONCRETE ROADWAY, SEE DETAIL 1/R8.1 AND 3/R8.7
3. PROTECT EXISTING DITCH CHANNEL TO REMAIN
4. PROPOSED R.O.W.
5. DENSE WOODED AREA, REFER TO SHEET R1.5 FOR TREE REMOVAL PLAN
6. SLOPE EASEMENT, EXTEND 1' BEYOND DISTURBED AREA
7. S. FORK WAIBLE CREEK CULVERT CROSSING
INSTALL PRECAST ARCH CULVERT
NATURAL CHANNEL BOTTOM
STA 47+21.60
BEBO E12 OR EQUIVALENT
15'-0" SPAN WITH 3'-2 3/4" RISE
SEE SHEET R8.8 AND R8.9
8. PUBLIC UTILITY EASEMENT
9. INSTALL 12' WIDE AC DRIVEWAY APPROACH. SEE DETAIL 7/R8.7.
10. INSTALL 12' WIDE GRAVEL ACCESS ROAD, SEE DETAIL 4/R8.7
11. CONSTRUCT CG-2 CATCH BASIN WITH CURB BREAK INLET
SEE DETAIL 2/R8.5
STA 46+98 (20' LT)
RIM ELEV=181.41
IE IN=179.17(E)
IE OUT=179.05(E)
12. CONSTRUCT CG-2 CATCH BASIN WITH CURB BREAK INLET
SEE DETAIL 2/R8.5
STA 46+98 (20' RT)
RIM ELEV=181.40
IE IN=179.17(E)
IE OUT=179.05(W)
13. INSTALL CULVERT HEADWALL, SEE CULVERT DETAILS ON SHEET R8.8 AND R8.9
14. INSTALL SURVEY MONUMENT AND CASE PER DETAIL 4/R8.10

GROUP **MACKENZIE**

Architecture
Interior Design
Land Use Planning

Civil Engineering
Structural Engineering
Transportation Planning
Landscape Architecture

Portland OR
Vancouver WA
Seattle WA

360.695.7679
360.695.7679
206.749.9993

Client
CITY OF HILLSBORO

Project
**NW 253RD AVE
IMPROVEMENTS AND
EXTENSION**



CURVE TABLE #			
CURVE	RADIUS	LENGTH	DELTA
6	900'	1018.5'	64°50' 31"

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REVISIONS:

REVISION DELTA SHEET	REVISIONS THIS SHEET	REVISION CLOSING DATE	DELTA

SHEET TITLE:
**PLAN AND PROFILE
SHEET
STA 46+00 TO
STA 50+00**

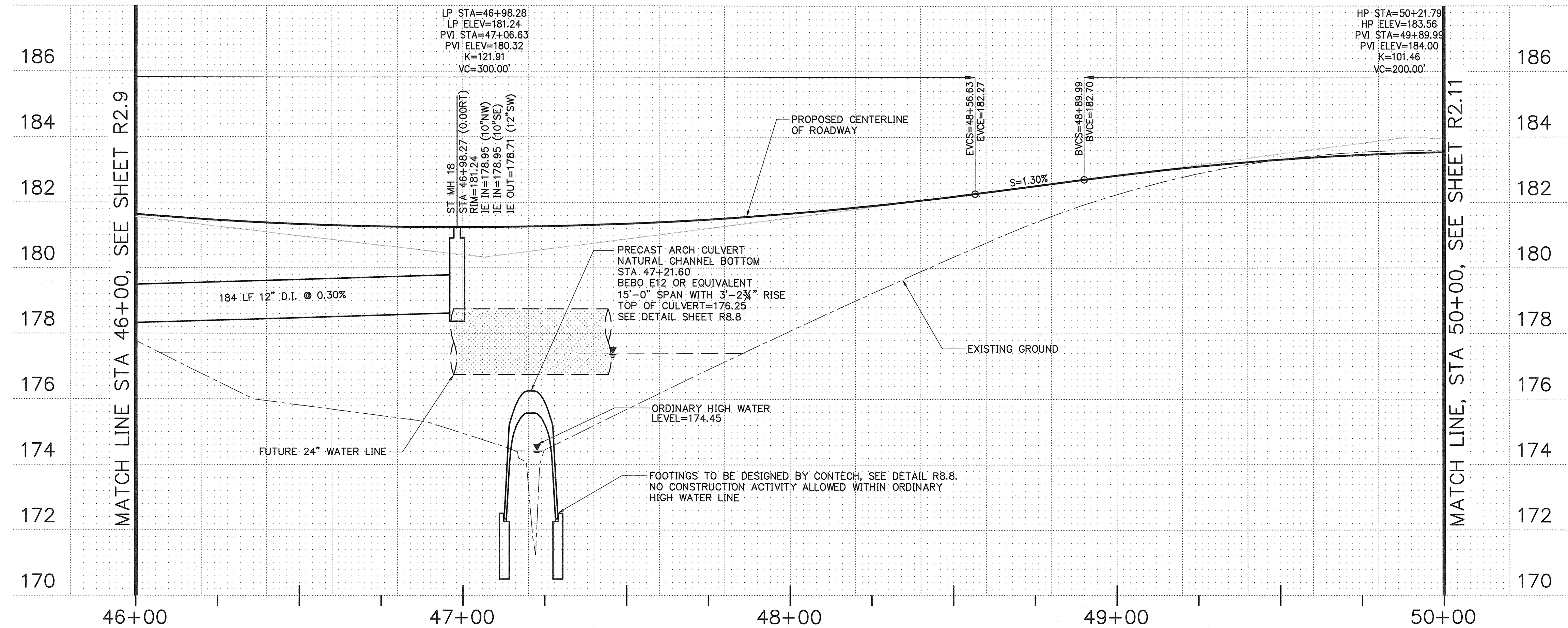
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CHECKED BY: RJH

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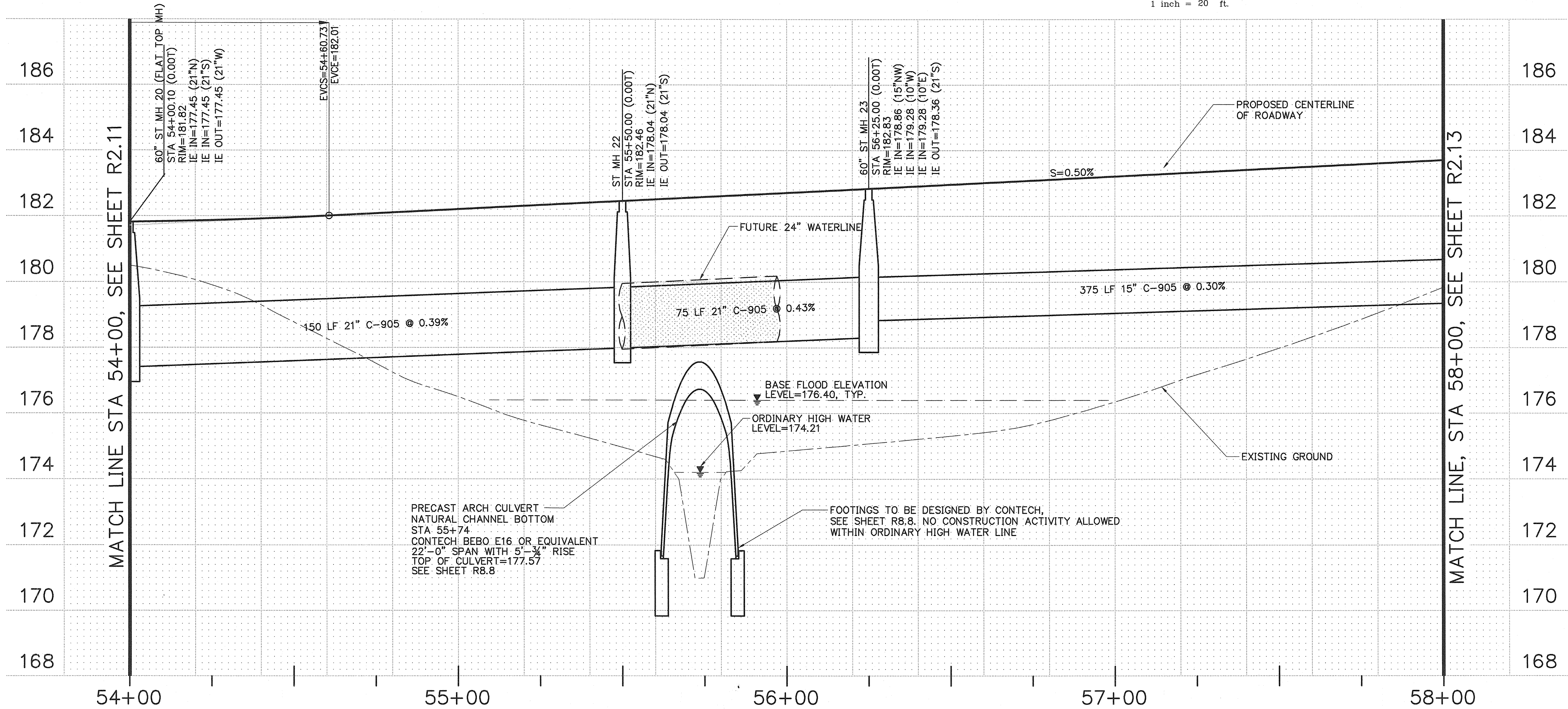
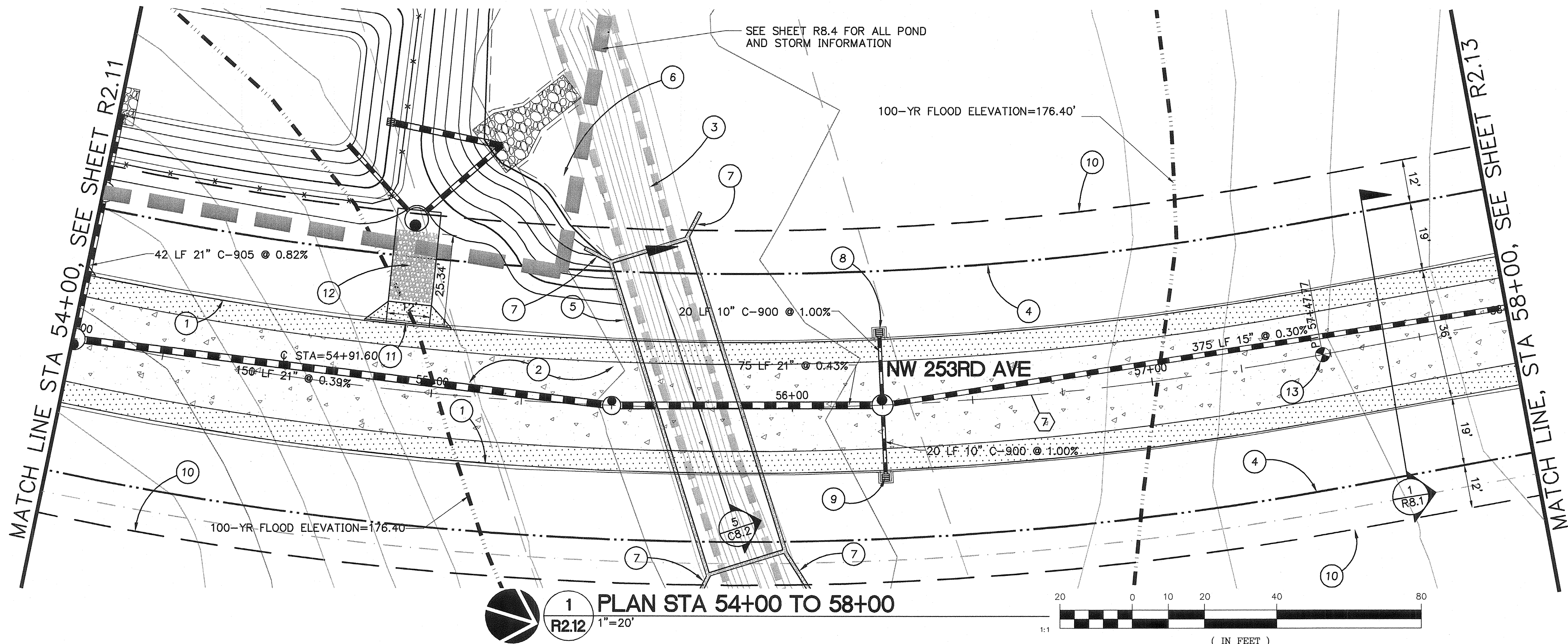
R2.10

JOB NO. **2120550.00**



THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON
THIS SHEET IS SHOWN FOR REFERENCE ONLY AND IS BASED ON
A SURVEY BY: CITY OF HILLSBORO DATE: 1/9/2013

100% CITY SUBMITTAL 6/26/13



KEYNOTES

1. PROPOSED MOUNTABLE CURB, SEE DETAIL 8/R8.7. TRANSITION TO VERTICAL CURB AT CATCH BASIN LOCATIONS, SEE DETAILS 9/R8.7 AND 2/R8.5.
2. PROPOSED CONCRETE ROADWAY, SEE DETAIL 1/R8.1 AND 3/R8.7.
3. DO NOT DISTURB EXISTING WAIBLE CREEK CHANNEL BEYOND LIMITS OF WORK.
4. PROPOSED R.O.W.
5. WAIBLE CREEK CULVERT CROSSING. INSTALL PRECAST ARCH CULVERT. NATURAL CHANNEL BOTTOM STA 55+74. CONTECH BEBO E16 OR EQUIVALENT 22'-0" SPAN WITH 5'- $\frac{3}{4}$ " RISE. SEE SHEETS R8.8 AND R8.9.
6. SLOPE EASEMENT 1' BEYOND TOE OF SLOPE.
7. INSTALL CONCRETE HEADWALL, SEE CULVERT DETAILS ON SHEET R8.8 AND R8.9.
8. CONSTRUCT CG-2 CATCH BASIN WITH CURB BREAK INLET. SEE DETAIL 2/R8.5. STA 56+25 (20' LT). RIM ELEV=181.51. IE OUT=179.48(W).
9. CONSTRUCT CG-2 CATCH BASIN WITH CURB BREAK INLET. SEE DETAIL 2/R8.5. STA 56+25 (20' RT). RIM ELEV=182.21. IE OUT=179.48(W).
10. PUBLIC UTILITY EASEMENT.
11. INSTALL 12' WIDE AC DRIVEWAY APPROACH. SEE DETAIL 7/R8.7.
12. INSTALL 12' WIDE GRAVEL ACCESS ROAD. SEE DETAIL 4/R8.7.
13. INSTALL SURVEY MONUMENT AND CASE PER DETAIL 4/R8.10.

GROUP MACKENZIE

Architecture
Interior Design
Land Use Planning

Civil Engineering
Structural Engineering
Transportation Planning
Landscape Architecture

Seattle WA 206.749.8893
Vancouver WA 360.695.7878
Portland OR 503.224.9560

Client
CITY OF HILLSBORO

Project
**NW 253RD AVE
IMPROVEMENTS AND
EXTENSION**

REGISTERED PROFESSIONAL ENGINEER
#66660
Ralph J.R. Henderson
OREGON
JULY 11, 2009
RALPH J.R. HENDERSON
EXPIRES: 6/30/13

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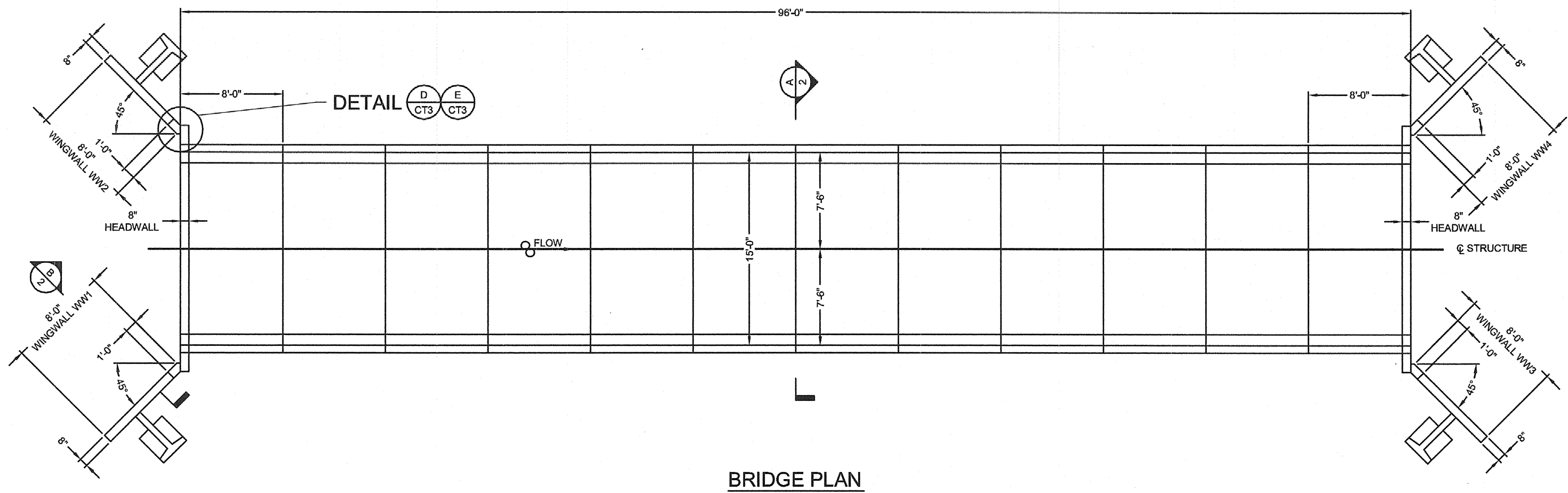
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**PLAN AND PROFILE
SHEET
STA 54+00 TO
STA 58+00**

DRAWN BY: MAG/MH
CHECKED BY: RJH
SHEET:

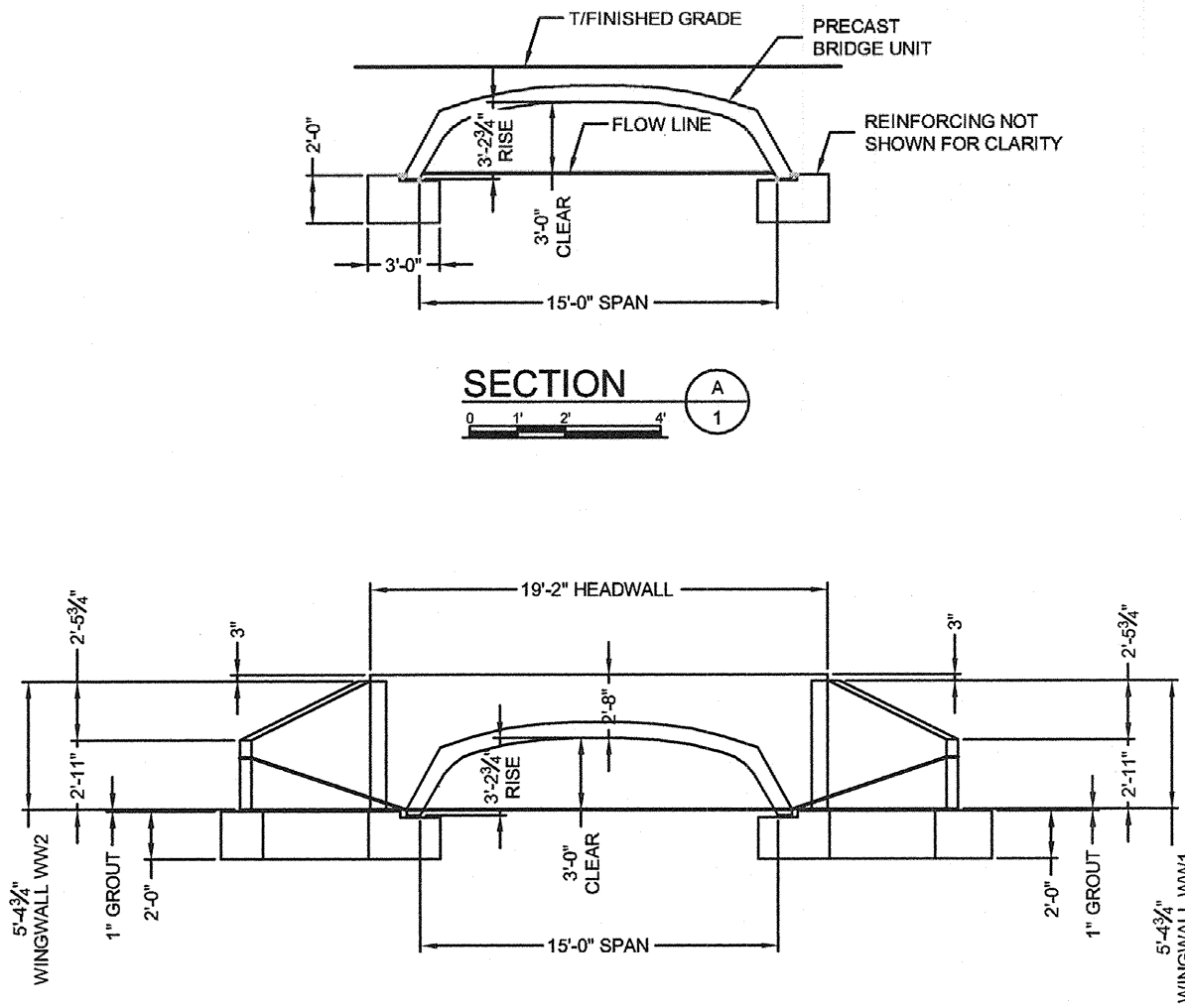
R2.12

JOB NO. **2120550.00**

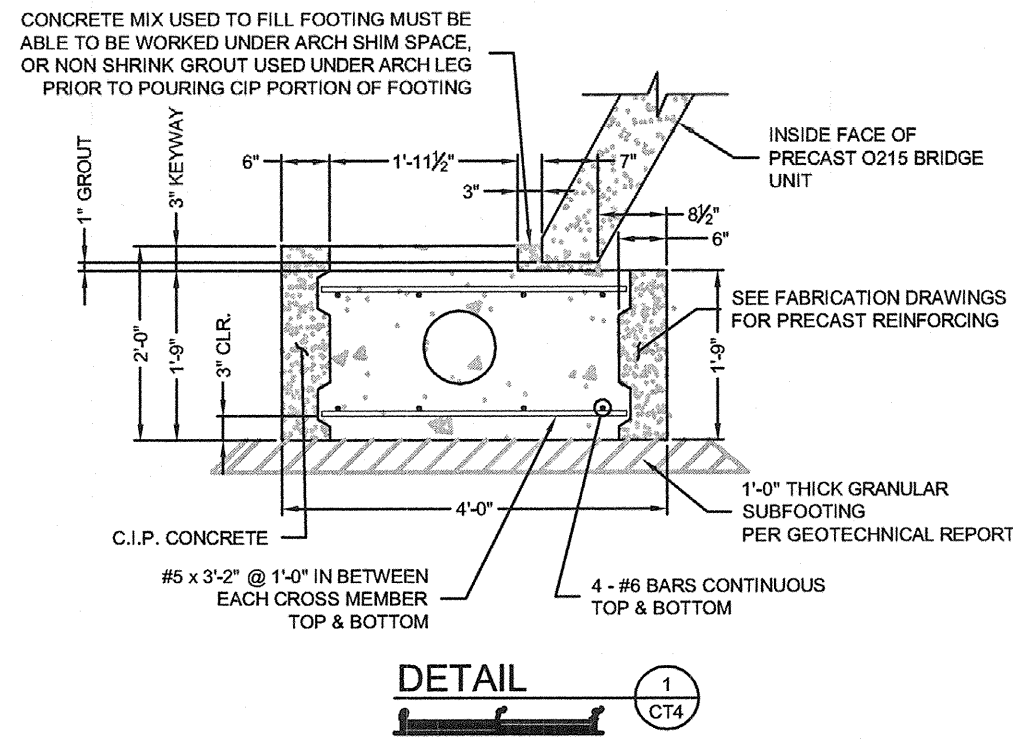
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BRIDGE PLAN

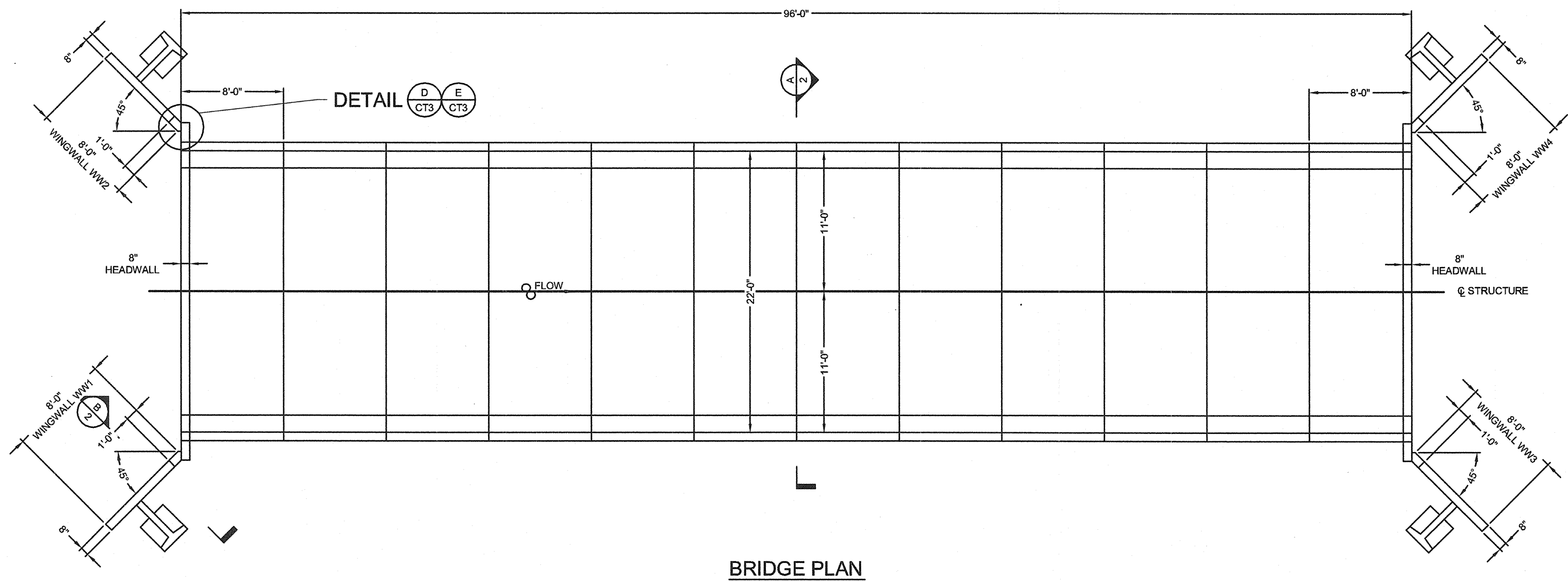


TYPICAL END ELEVATION

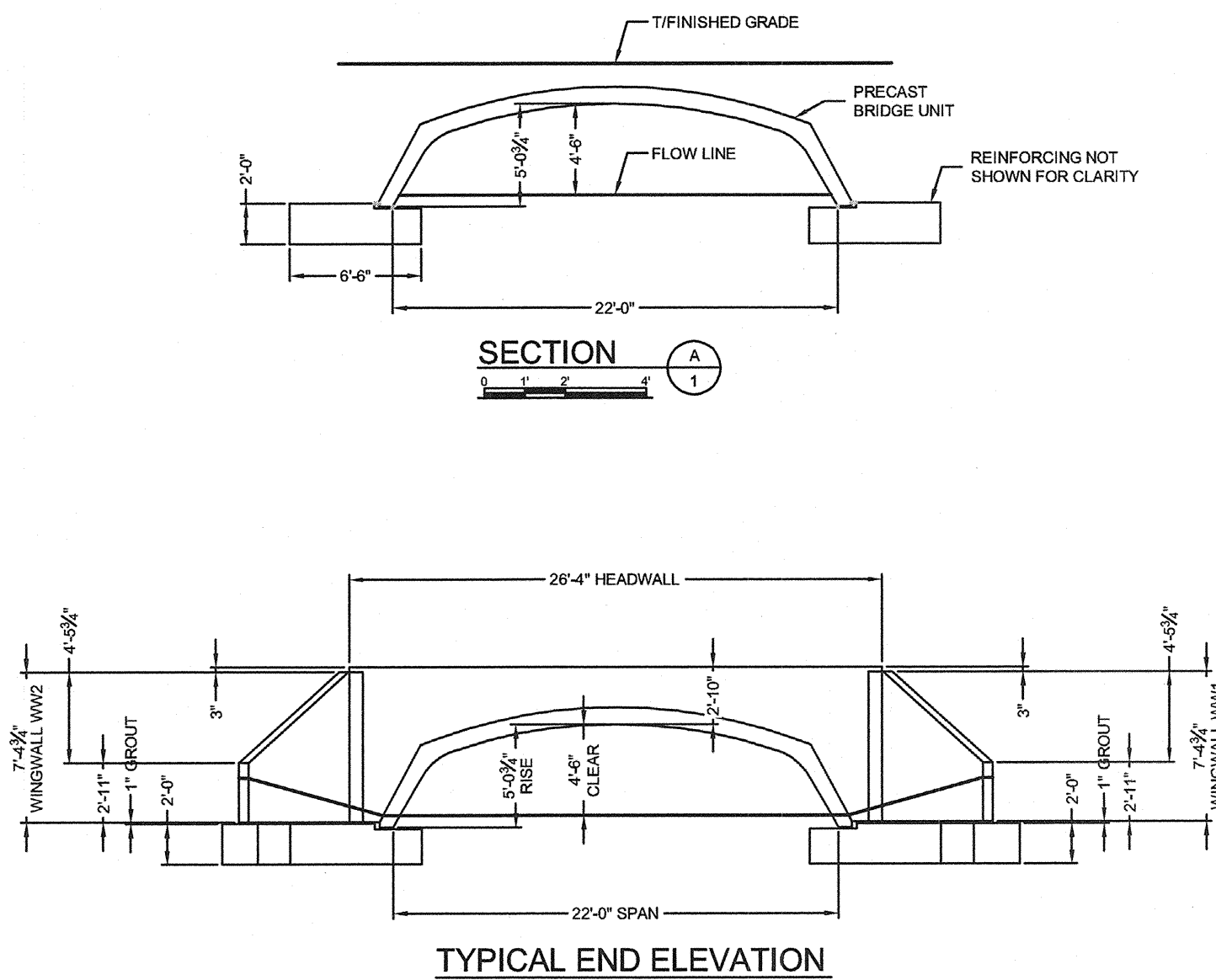


DETAIL

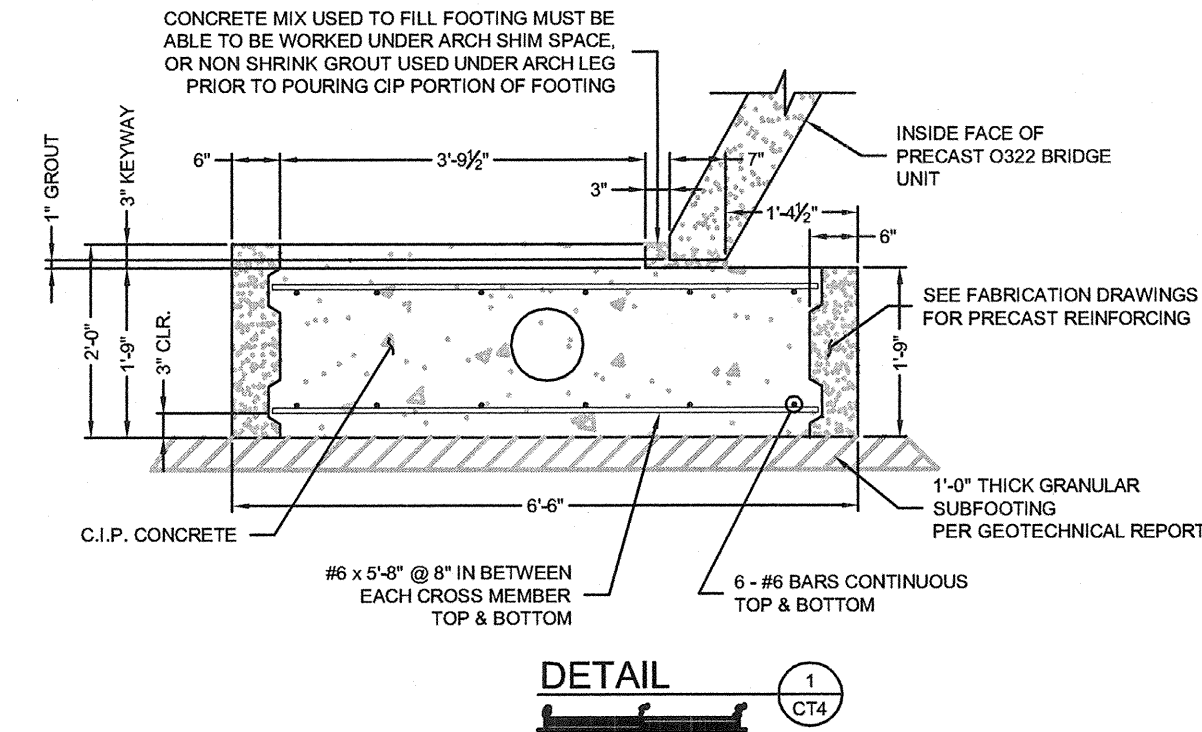
1 ARCH CULVERT - STA 47+20
R8.8 SCALE: 1/8" = 1'-0"



BRIDGE PLAN



TYPICAL END ELEVATION



DETAIL

2 ARCH CULVERT - STA 55+75
R8.8 SCALE: 1/8" = 1'-0"

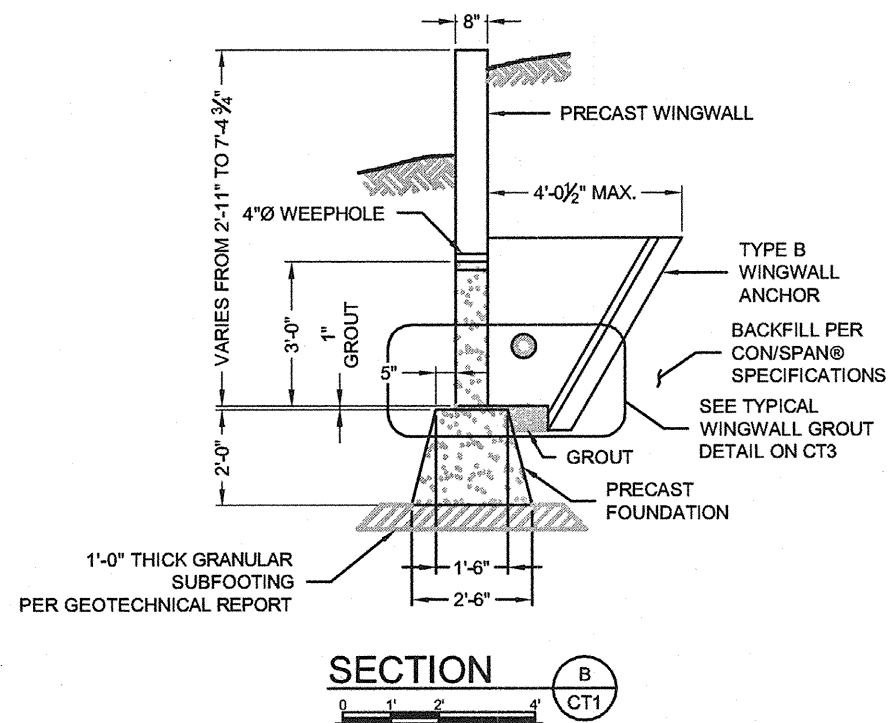
DESIGN DATA

DESIGN LOADING:
BRIDGE UNITS: HS-20
DESIGN FILL HEIGHT: 2'-0" MIN. TO 4'-6" MAX.
FROM TOP OF CROWN TO TOP OF PAVEMENT.
DESIGN METHOD: LOAD RESISTANCE FACTORED DESIGN
NET ALLOWABLE SOIL BEARING PRESSURE: 2500 PSF*
GROSS ALLOWABLE SOIL BEARING PRESSURE: 2980 PSF

*FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE
IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT
PREPARED BY GEO DESIGN, INC DATED 2/25/13.

MATERIALS

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED
IN ACCORDANCE WITH CONSPANS® SPECIFICATIONS.
CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM
COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING
STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615
OR A996-GRADE 60.



SECTION

3 TYPICAL WINGWALL DETAILS
R8.8 SCALE: 1/8" = 1'-0"

Project
NW 253RD AVE
IMPROVEMENTS AND
EXTENSION



EXPIRES: 6/30/13

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REVISIONS:

REVISION DELTA SHEET	REVISIONS THIS CLOSING DATE

SHEET TITLE:
PRECAST
ARCH CULVERT
DETAILS

DRAWN BY:

CHECKED BY:

SHEET:

R8.8

JOB NO. 2120550.00

100% CITY SUBMITTAL 6/26/13

NOTE: PRECAST ARCH STRUCTURE INFORMATION PROVIDED BY CONTECH ENGINEERED STRUCTURES, BASED ON INFORMATION PROVIDED BY GROUP MACKENZIE

1. DESCRIPTION
- 1.1. TYPE - THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CONCRETE BRIDGE SYSTEM WITH THE BRIDGE UNITS AND THE SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE LINES, DIMENSIONS, DESIGN AND DETAILS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE THE SPECIFICATIONS AND DETAILS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL BE USED.
- 1.2. DESIGNATION - PRECAST REINFORCED CONCRETE BRIDGE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE.
2. DESIGN
- 2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 17TH EDITION, ASADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION, UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.

3. MATERIALS
- 3.1. CONCRETE - THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF COARSE AGGREGATE, ADMIXTURES AND WATER, AIR-ENTRAINED CONCRETE SHALL CONTAIN 4.2 PERCENT AIR. THE MIX SHALL BE ENTRAINING ADMIXTURE WATER REQUIRED TO ACHIEVE 104. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
- 3.2. PORTLAND CEMENT - SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS
- 3.3. COARSE AGGREGATE - SHALL CONSIST OF STONE OR CRUSHED ROCK, TYPE II OR TYPE III CEMENT, OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.4. CALCIUM CHLORIDE - THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
- 3.5. MIXTURE - THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS MIXTURE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 584 POUNDS (B BAGS) PER CUBIC YARD OF CONCRETE.
- 3.6. MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.7. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER.
- 3.8. REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION 180 OR A401, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION 601, GRADE 60 LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET STEEL BARS.
- 3.9. STEEL HARDWARE
- 3.10. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A307, NUTS SHALL CONFORM TO ASTM A308, WASHERS SHALL CONFORM TO ASTM A309, ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH UNF 31.
- 3.11. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO ASTM A572, GRADE 50, ALL STEEL SHALL BE HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
- 3.12. INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER

12. INSTALLATION PREPARATION
- TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALLS, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.
- 12.1. THE CONTRACTOR SHALL NOT DIRECTLY EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.
- THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE FOOTINGS.
- THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING OR MASONRY ON THE PLANS. NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- THE FOOTINGS SHALL BE GIVEN A SMOOTH FINISH AND SHALL BE DESIGNED TO HAVE A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL ELEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.
- THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10-0" STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN 1/4" IN 10'-0".
- IF A PRECAST CONCRETE FOOTING IS USED, THE CONTRACTOR SHALL PREPARE A 1" THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO PLACING THE PRECAST FOOTING.
- THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE SECURED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE USED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

13. INSTALLATION
- 13.1. GENERAL - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS PLANNED IN THE PUBLICATION CONSPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.
- 13.1.1. LIFTING - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING RATCH FOR EACH CRANE UNIT. SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH® BRIDGE SOLUTIONS.
- 13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HS20 OR HS25) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® BRIDGE SOLUTIONS.
- 13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS SHALL BE FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY.
- NO CONSTRUCTION EQUIPMENT SHALL CROSS

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

1. DESCRIPTION
- 1.1. TYPE - THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CONCRETE BRIDGE SYSTEM WITH THE BRIDGE UNITS AND THE SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE LINES, DIMENSIONS, DESIGN AND DETAILS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE THE SPECIFICATIONS AND DETAILS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL BE USED.
- 1.2. DESIGNATION - PRECAST REINFORCED CONCRETE BRIDGE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE.
2. DESIGN
- 2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 17TH EDITION, ASADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION, UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.

3. MATERIALS
- 3.1. CONCRETE - THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF COARSE AGGREGATE, ADMIXTURES AND WATER, AIR-ENTRAINED CONCRETE SHALL CONTAIN 4.2 PERCENT AIR. THE MIX SHALL BE ENTRAINING ADMIXTURE WATER REQUIRED TO ACHIEVE 104. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
- 3.2. PORTLAND CEMENT - SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS
- 3.3. COARSE AGGREGATE - SHALL CONSIST OF STONE OR CRUSHED ROCK, TYPE II OR TYPE III CEMENT, OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.4. CALCIUM CHLORIDE - THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
- 3.5. MIXTURE - THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS MIXTURE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 584 POUNDS (B BAGS) PER CUBIC YARD OF CONCRETE.
- 3.6. MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.7. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER.
- 3.8. REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION 180 OR A401, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION 601, GRADE 60 LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET STEEL BARS.
- 3.9. STEEL HARDWARE
- 3.10. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A307, NUTS SHALL CONFORM TO ASTM A308, WASHERS SHALL CONFORM TO ASTM A309, ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH UNF 31.
- 3.11. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO ASTM A572, GRADE 50, ALL STEEL SHALL BE HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
- 3.12. INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS (CONTD)

- THE BARE PRECAST CONCRETE BRIDGE UNIT, AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITH THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.
- LEVELING PADSHIMS - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON MASONITE OR STEEL SHIMS MEASURING 8" x 5" MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF 1/2" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF 1/2", 3/4" AND 1" THICK STEEL OR MASONITE SHIMS SHALL BE AVAILABLE FOR VARIOUS SHIMMING PURPOSES SHOULD BE ON SITE.
- 13.3. PLACEMENT OF BRIDGE UNITS - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED 1/2".
- 13.4. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE BRIDGE ELEMENTS TO PREVENT THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTIL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IF, HOWEVER, DUE TO SITE CONDITIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.
- IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:
- 1) FIND "MEASURED SPAN" UPON ARCH UNITS DELIVERY TO SITE. PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS, "MEASURED SPAN" SHALL BE THE AVERAGE OF: (a) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.
- 2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION, VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:
- A) THE NOMINAL SPAN 1/2" OR B) THE "MEASURED SPAN"
- IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.
- 13.5. PLACEMENT OF WINGWALLS & HEADWALLS - THE WINGWALLS AND HEADWALLS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. WATERPROOFING JOINT PROTECTION AND SUBSURFACE DRAINAGE
- 13.6.1. EXTERNAL PROTECTION OF JOINTS - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 1/2" x 1/2" x 1/2" PRE-FORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE INTERNAL WRAP SHALL BE EITHER EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAX MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE

- COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE UNIT AND DOWN THE INSIDE OF THE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG AND SHALL BE OVERLAPPED BY 3".
- 13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END OF THE BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9' x 9' SQUARE OF JOINT WRAP.
- 13.6.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT OF THE JOINTS TO ITS PROPER LOCATION OVER THE JOINT.
- 13.6.4. SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.
- 13.7. GROUTING
- 13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. FILL THE FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THE ENTIRE KEYWAY IS FULLY FILLED. THE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY BRIS (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.
- 13.7.2. ALL BRIDGE UNITS SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 1/2".
- 13.7.3. BRIDGE UNITS SHALL BE GROUTED AND GROUT HAS CURED. IF, HOWEVER, DUE TO SITE CONDITIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.
- 13.8.1. BACKFILL - PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.
- 13.8.2. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.
- 13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONSTRUCTION ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT, SHALL APPLY TO LIFTING EXCEPT AS MODIFIED IN THIS SECTION.
- 13.8.4. BACKFILL ZONES
- 13.8.4.1. IN-SITU SOIL
- ZONE A - CONSTRUCTED EMBANKMENT OR OVERLAP FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE UNITS OR ROAD STRUCTURE.
- 13.8.5.1. REQUIRED BACKFILL PROPERTIES
- 13.8.5.1.1. THE BACKFILL MATERIAL MUST BE TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE ELEMENTS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO THE ZONE B MATERIAL. FOR MINIMUM LAYER DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.
- 13.8.5.2. ZONE A - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.
- 13.8.5.3. ZONE B - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER. EXCEPT FOR DETAILED DESCRIPTIONS OF ACCEPTABLE MATERIALS.
- 13.8.5.4. ZONE C - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.
- 13.8.5.5. THE PRECAST ENGINEER SHALL REVIEW MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR).

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS (CONTD)

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- 1.2. DESIGNATION - PRECAST REINFORCED CONCRETE BRIDGE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS SHALL BE MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE.
2. DESIGN
- 2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 17TH EDITION, ASADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION, UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.

3. MATERIALS
- 3.1. CONCRETE - THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF PORTLAND CEMENT, ONE AND ONE-HALF PARTS OF COARSE AGGREGATE, ADMIXTURES AND WATER, AIR-ENTRAINED CONCRETE SHALL CONTAIN 4.2 PERCENT AIR. THE MIX SHALL BE ENTRAINING ADMIXTURE WATER REQUIRED TO ACHIEVE 104. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
- 3.2. PORTLAND CEMENT - SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS
- 3.3. COARSE AGGREGATE - SHALL CONSIST OF STONE OR CRUSHED ROCK, TYPE II OR TYPE III CEMENT, OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.4. CALCIUM CHLORIDE - THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
- 3.5. MIXTURE - THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS MIXTURE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 584 POUNDS (B BAGS) PER CUBIC YARD OF CONCRETE.
- 3.6. MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.
- 3.7. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER.
- 3.8. REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION 180 OR A401, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION 601, GRADE 60 LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET STEEL BARS.
- 3.9. STEEL HARDWARE
- 3.10. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A307, NUTS SHALL CONFORM TO ASTM A308, WASHERS SHALL CONFORM TO ASTM A309, ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH UNF 31.
- 3.11. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO ASTM A572, GRADE 50, ALL STEEL SHALL BE HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
- 3.12. INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER

- THE BARE PRECAST CONCRETE BRIDGE UNIT, AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITH THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.
- LEVELING PADSHIMS - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON MASONITE OR STEEL SHIMS MEASURING 8" x 5" MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF 1/2" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF 1/2", 3/4" AND 1" THICK STEEL OR MASONITE SHIMS SHALL BE AVAILABLE FOR VARIOUS SHIMMING PURPOSES SHOULD BE ON SITE.
- 13.3. PLACEMENT OF BRIDGE UNITS - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED 1/2".
- 13.4. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE BRIDGE ELEMENTS TO PREVENT THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTIL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IF, HOWEVER, DUE TO SITE CONDITIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.
- IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:
- 1) FIND "MEASURED SPAN" UPON ARCH UNITS DELIVERY TO SITE. PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS, "MEASURED SPAN" SHALL BE THE AVERAGE OF: (a) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.
- 2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION, VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:
- A) THE NOMINAL SPAN 1/2" OR B) THE "MEASURED SPAN"
- IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.
- 13.5. PLACEMENT OF WINGWALLS & HEADWALLS - THE WINGWALLS AND HEADWALLS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. WATERPROOFING JOINT PROTECTION AND SUBSURFACE DRAINAGE
- 13.6.1. EXTERNAL PROTECTION OF JOINTS - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 1/2" x 1/2" x 1/2" PRE-FORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE INTERNAL WRAP SHALL BE EITHER EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAX MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE

- COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE UNIT AND DOWN THE INSIDE OF THE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG AND SHALL BE OVERLAPPED BY 3".
- 13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END OF THE BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9' x 9' SQUARE OF JOINT WRAP.
- 13.6.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT OF THE JOINTS TO ITS PROPER LOCATION OVER THE JOINT.
- 13.6.4. SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.
- 13.7. GROUTING
- 13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. FILL THE FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THE ENTIRE KEYWAY IS FULLY FILLED. THE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY BRIS (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.
- 13.7.2. ALL BRIDGE UNITS SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 1/2".
- 13.7.3. BRIDGE UNITS SHALL BE GROUTED AND GROUT HAS CURED. IF, HOWEVER, DUE TO SITE CONDITIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.
- 13.8.1. BACKFILL - PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.
- 13.8.2. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.
- 13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONSTRUCTION ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT, SHALL APPLY TO LIFTING EXCEPT AS MODIFIED IN THIS SECTION.
- 13.8.4. BACKFILL ZONES
- 13.8.4.1. IN-SITU SOIL
- ZONE A - CONSTRUCTED EMBANKMENT OR OVERLAP FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE UNITS OR ROAD STRUCTURE.
- 13.8.5.1. REQUIRED BACKFILL PROPERTIES
- 13.8.5.1.1. THE BACKFILL MATERIAL MUST BE TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE ELEMENTS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO THE ZONE B MATERIAL. FOR MINIMUM LAYER DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.
- 13.8.5.2. ZONE A - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.
- 13.8.5.3. ZONE B - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER. EXCEPT FOR DETAILED DESCRIPTIONS OF ACCEPTABLE MATERIALS.
- 13.8.5.4. ZONE C - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.
- 13.8.5.5. THE PRECAST ENGINEER SHALL REVIEW MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR).

- 13.8.1. BACKFILL - PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.
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